REMARKS/ARGUMENTS

Claims 6-9, 18, 19, 36-38, and 42 have been amended; claim 82 has been canceled; and claims 1-5, 10-17, 20-35, 39-41, 43-81, and 83-133 remain unchanged. Thus, claims 1-81 and 83-133 are pending.

Claims 109, 116-118, 120-122, 126-128, and 131-132 are allowed.

Claims 6-54, 56-63, 66-108, and 110-111 are objected to as being dependent upon a rejected base claim, but would be allowable if written in independent form.

Claims 114, 119, 125, 129 and 130 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al. (US 6,700,672).

Claims 1-5, 55, 64-65, 112-113, 123-124 and 133 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al.

All the pending claims of the subject application are believed to comply with all requirements of 35 U.S.C. Accordingly, Applicant requests examination and allowance of all pending claims.

Claims Allowed

Applicants earnestly thank the Examiner for indicating that claims 109, 116-118, 120-122, 126-128, and 131-132 are allowed.

Claims Rewritten in Independent Form and Allowable

Applicants also thank the Examiner for indicating the allowability of claims 6-54, 56-63, 66-108, and 110-111, if properly rewritten in independent form. Each one of the claims 6-9, 18, 19, 36-38, and 42 has been rewritten in independent form to include all of the limitations of its base claim and any intervening claims, and is thus believed to allowable.

Claims 10-17, 20-35, 39-41, and 43-51 depend from claims 9, 19, 38, and 42, respectively, and each includes all of the limitations of the claim from which it depends. Therefore, claims 10-17, 20-35, 39-41, and 43-51 are also believed to be allowable, for at least the reasons stated above with regard to claims 9, 19, 38, and 42.

The Rejection Under 35 U.S.C. § 103(a)

Claims 1-5, 55, and 64-65

Applicants respectfully traverse the rejection of claim 1 under 103(a) in view of Jones et al. Claim 1 recites, among other features, "distributing a set of line samples across an object scene such that the distribution of the set of line samples is non-regular." Jones et al. teaches two methods of positioning line samples that fail to disclose, and in fact teach away from, the non-regular distribution of line samples as recited in claim 1.

The first method taught by Jones et al. relates to the positioning of multiple line samples with different orientations that form a regular pattern. The multiple line samples disclosed by Jones et al. consist of "two line samples 701 and 702" that are "arranged perpendicular to each other." See Jones et al., col. 7, lines 1-2 and Figs. 7a (showing perpendicular line samples 701 and 702). If anything, this presents a regular distribution of line samples (distributed at a fixed angle of 90 degrees apart). Even if the two perpendicular line samples taught by Jones et al. were extended to many line samples, nothing in Jones et al. suggests that the distribution of such line samples would be anything but a regular distribution of line samples separated by fixed angles. For instance, three line samples may be separated by fixed angles of 60 degrees apart, four line samples may be separated by fixed angles of 45 degrees apart, and so on. Therefore, Jones et al. at best teaches the regular distribution of line samples at fixed angles apart. It thus fails to disclose and teaches away from the non-regular distribution of line samples as recited in claim 1.

The second method taught by Jones et al. relates to the positioning of a single line sample for each pixel at an orientation perpendicular to edges in a continuous image. See Jones et al. at col. 6, lines 48-50. In this method, only one line sample is used for each pixel. See Id. at col. 8, lines 31-34 ("If information about the edges in the underlying continuous image is known, then a single line sample per pixel with the correct orientation is sufficient to properly generate WCVs for pixels sampling that image."). The single line sample of each pixel is tied to a fixed location within the pixel, such as the center of the pixel. See Id. at col. 4, lines 47 ("...the line sample is straight and centered on the pixel."). Thus, multiple line samples are disclosed in this method only in the sense that there are multiple pixels, each containing a single line sample. However, there is absolutely no teaching in Jones et al. that the pixels themselves may be arranged according to a non-regular distribution. In fact, Jones et al. specifically discloses that

its pixels form a regular array. See Id., col. 1, lines 16-20 ("a generated image is represented as a regular array of discrete samples... The individual sample points are referred to as pixels."). Because the pixels form a regular array, and there is only a single line sample tied to a fixed location within each pixel, the resulting collection of line samples likely reflects a regular pattern. See e.g., Id., Fig. 13, block 1304 (showing regularly spaced line samples along edges of a triangle). Thus, the second method taught by Jones et al. also does not disclose or suggest the non-regular distribution of line samples as recited in claim 1.

Furthermore, the second method taught by Jones et al. explicitly teaches away from the features of "computing a view of object scene along each line sample in the set of line samples to form a view of the object scene" and "combining the view of the object scene along each line sample in the set of line samples to form a view of the object scene" recited in claim 1. As mentioned above, the second method of Jones et al. uses a single line sample per pixel. The convolution result obtained from the single line sample of a pixel is used to represent that pixel; it is not combined with the convolution result obtained from the single line sample of another pixel. See Id., col. 4, lines 8-22. In other words, the advantage of the second method taught by Jones et al. lies in the fact that a single line sample is sufficient to represent each pixel. See Id. at col. 8, lines 31-34 ("If information about the edges in the underlying continuous image is known, then a single line sample per pixel with the correct orientation is sufficient to properly generate WCVs for pixels sampling that image."). Thus, the second method fails to disclose, and in fact teaches away from "combining the view of the object scene along each line sample in the set of line samples to form a view of the object scene" as recited in claim 1.

Given the foregoing, it is believed that claim 1 is patentable over Jones et al. Claims 2-5, 55, and 64-65 depend from claim 1 and include all of the limitations of claim 1. Thus, claims 2-5, 55, and 64-65 are also believed to be patentable over Jones et al. for at least the reasons stated above with respect to claim 1.

Claims 112-113, 123-124, and 133

Claims 112 and 123 each recites features relating to non-regular distribution of line samples and combining of the view of objects each line sample overlaps. For at least reasons similar to those stated above with respect to claim 1, claims 112 and 123 are believed to be allowable.

Claims 113 and 124 each recites features relating to distributing line samples in a non-regular pattern and combining the view of the object scene overlapped by a subset of line samples from the set of line samples for each pixel. For at least reasons similar to those stated above with respect to claim 1, claims 113 and 124 are believed to be allowable.

Claim 133 recites features relating to non-regular distribution of line samples and combining the view of the object scene along each line sample in the set of line samples to form a view of the object scene. For at least reasons similar to those stated above with respect to claim 1, claim 133 is believed to be allowable.

The Rejection Under 35 U.S.C. § 102(e)

Claims 114, 119, 125, and 130

Claims 114 and 125 each recites features relating to positioning a line sample within a boundary of each pixel in a non-regular pattern. For at least the reasons stated above with respect to claim 1, claims 114 and 125 are believed to be allowable.

Claims 119 and 130 each recites features relating to non-regular distribution of line samples and combining characteristic information of the line samples in the pixel, thereby to determine characteristic information of the pixel. For at least the reasons stated above with respect to claim 1, claims 119 and 130 are believed to be allowable.

Claim 129

Claim 129 recites features relating to instructions that "determine characteristic information of each pixel by line sampling object scene data at a position within a boundary of each of said pixels and by point sampling object scene data at a position within the boundary of each of said pixels." Nothing in Jones et al. suggest the use of both line sampling and point sampling of object scene data.

In fact, Jones et al. clearly describes line sampling as an alternative to be used instead of either point sampling or area sampling. See Id. at col. 2, lines 42-45 ("Accordingly, there are numerous drawbacks and disadvantages of prior art area and point sampling anti-aliasing methods."); col. 3, lines 59-61 ("The present invention uses line samples to provide an improved method for generating weighted coverage values"); and col. 4, lines 18-21 ("These properties give line sampling better convergence than point sampling, and accuracy similar to area sampling at a lower computational cost.").

It is therefore believed that Jones et al. fails to disclose, and in fact teaches away from, the combined use of both line sampling and point sampling of object scene data, as recited in claim 129. Thus, claim 129 is believed to be allowable.

Status of Claim 115

The status of claim 115 does not appear to be stated in the current Office Action. Claim 115 includes features similar to those recited in claim 126, which is allowed. It is believed that claim 115 is allowable for at least the reasons for which claim 126 is allowed. Applicants respectfully request indication of the allowability of claim 115.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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